

WHAT IS CLAIMED IS:

1. In a communication network having a plurality of subnetworks,
a portable data collection terminal comprising:

5 a base module containing a base processing unit operable
on data in accordance with a set of communication
software routines; and

a communication module comprising:
10 a first communication transceiver having a first
operating characteristic to conduct data
communications on a first of the plurality
of subnetworks;

15 a second communication transceiver having a
second operating characteristic to conduct
data communications on a second of the
plurality of subnetworks, the second
operating characteristic being different
from the first operating characteristic and
the second subnetwork being different from
the first subnetwork; and

20 a communication processor connected between the
base processing unit and the first and
second communication transceivers for
converting data received by the first and
second communication transceivers to a
25 format for processing by the base
processing unit in accordance with the set
of communication software routines and for
converting data processed by the base

5 processing unit to a format for transmission
by a selected one of the first and second
communication transceivers, thereby
isolating the base processing unit from
differences between the first and second
operating characteristics of the first and
second communication transceivers.

10 2. The portable data collection terminal of claim 1 wherein the
communication processor comprises:

15 a first processing unit connected between the base processing unit
and the first communication transceiver for converting
data received by the first communication transceiver to a
format for processing by the base processing unit in
accordance with the set of communication software
routines and for converting data processed by the base
processing unit to a format for transmission by the first
communication transceiver, and

20 a second processing unit connected between the base processing
unit and the second communication transceiver for
converting data received by the second communication
transceiver to a format for processing by the base
processing unit in accordance with the set of
communication software routines and for converting data
25 processed by the base processing unit to a format for
transmission by the second communication transceiver.

3. The portable data collection terminal of claim 1 wherein the first

communication transceiver operates in a wired subnetwork and the second communication transceiver operates in a wireless subnetwork.

5 4. The portable data collection terminal of claim 3 wherein the wireless subnetwork comprises a backup network in the event of a failure in the wired subnetwork.

10 5. The portable data collection terminal of claim 4 wherein the communication processor includes test means for testing the wired subnetwork.

15 6. The portable data collection terminal of claim 5 wherein the test means includes means for initiating a test communication by the second communication transceiver and means responsive to the absence of receipt of a reply test communication by the first communication transceiver following initiation of a test communication by the second communication transceiver for conducting data communications with the second communication transceiver.

20 7. The portable data collection terminal of claim 6 wherein the test means further includes means responsive to receipt of a test communication by the second communication transceiver for initiating a test communication by the first communication transceiver.

25 8. The portable data collection terminal of claim 1 wherein the communication module is housed in a PCMCIA card.

9. The portable data collection terminal of claim 1 wherein the communication processor further includes means for relaying communication received by one of its first and second communication transceivers for

retransmission by the other of its second and first communications transceivers.

10. In the communication network of claim 1 including a computer and a plurality of portable data collection terminals each connected to the plurality of subnetworks and wherein at least one of the communication transceivers of each of the portable data collection terminals operates in a wireless subnetwork, the communication processor of each data collection terminal being responsive to an out-of-range condition for the respective portable data collection terminal to initiate data communications by its said one communication transceiver to another of the plurality of portable data collection terminals, the other of the data collection terminals relaying data communications between the computer and the first-named data collection terminal.

11. A portable data collection terminal comprising:

- 15 a base module containing a base processing unit operable on data in accordance with a set of communication software routines; and
- a communication module comprising:
 - 20 a first communication transceiver having a first operating characteristic for conducting data communications on a first subnetwork;
 - a second communication transceiver having a second operating characteristic for conducting data communications on a second subnetwork, the second operating characteristic being different from the first operating characteristic and the second subnetwork being different from the first

subnetwork; and

a communication processor connected between the
base processing unit and the first and
second communication transceivers for
converting data received by the first and
second communication transceivers to a
format for processing by the base
processing unit in accordance with the set
of communication software routines and for
converting data processed by the base
processing unit to a format for transmission
by a selected one of the first and second
communication transceivers, thereby
isolating the base processing unit from
differences between the first and second
operating characteristics of the first and
second communication transceivers.

12. The portable data collection terminal of claim 11 wherein the
communication processor comprises:

a first processing unit connected between the base processing unit
and the first communication transceiver for converting
data received by the first communication transceiver to a
format for processing by the base processing unit in
accordance with the set of communication software
routines and for converting data processed by the base
processing unit to a format for transmission by the first
communication transceiver, and

5 a second processing unit connected between the base processing unit and the second communication transceiver for converting data received by the second communication transceiver to a format for processing by the base processing unit in accordance with the set of communication software routines and for converting data processed by the base processing unit to a format for transmission by the second communication transceiver.

10 13. The portable data collection terminal of claim 11 wherein the first communication transceiver is a wired transceiver and the second communication transceiver is a wireless transceiver.

15 14. The portable data collection terminal of claim 13 wherein the communication processor includes test means, the test means including means for initiating a test communication by the second communication transceiver and means responsive to the absence of receipt of a reply test communication by the first communication transceiver following initiation of a test communication by the second communication transceiver for conducting data communications with
20 the second communication transceiver.

25 15. The portable data collection terminal of claim 14 wherein the test means further includes means responsive to receipt of a test communication by the second communication transceiver for initiating a test communication by the first communication transceiver.

16. The portable data collection terminal of claim 11 wherein the communication module is housed in a PCMCIA card.

17. The portable data collection terminal of claim 11 wherein the communication processor further includes means for relaying communication received by one of its first and second communication transceivers for retransmission by the other of its second and first communication transceivers.

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18. A communication module for use with a portable data terminal, comprising:

10 a first communication transceiver having a first operating characteristic for conducting data communications on a first subnetwork;

15 a second communication transceiver having a second operating characteristic for conducting data communications on a second subnetwork, the second operating characteristic being different from the first operating characteristic and the second subnetwork being different from the first subnetwork; and

20 a communication processor connected to the first and second communication transceivers for converting data received by the first and second communication transceivers to a predetermined format and for converting data in a predetermined format to a format for transmission by a selected one of the first and second communication transceivers.

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19. The communication module of claim 18 wherein the communication processor comprises:

a first processing unit for converting data received by the first communication transceiver to a predetermined format and for converting data to a predetermined format for transmission by the first communication transceiver, and
5 a second processing unit for converting data received by the second communication transceiver to a predetermined format and for converting data to a predetermined format for transmission by the second communication transceiver.

10 20. The communication module of claim 18 wherein the first communication transceiver is a wired transceiver and the second communication transceiver is a wireless transceiver.

15 21. The communication module of claim 20 wherein the communication processor includes test means, the test means including means for initiating a test communication by the second communication transceiver and means responsive to the absence of receipt of a reply test communication by the first communication transceiver following initiation of a test communication by the second communication transceiver for conducting data communications with
20 the second communication transceiver.

22. The communication module of claim 21 wherein the test means further includes means responsive to receipt of a test communication by the second communication transceiver for initiating a test communication by the first
25 communication transceiver.

23. The communication module of claim 18 further characterized by being housed in a PCMCIA card.

24. The communication module of claim 18 wherein the communication processor further includes means for relaying communication received by one of its first and second communication transceivers for retransmission by the other of its second and first communication transceivers.